SIEMENS

Sensation

CT

Maintenance Protocol

System

Maintenance Protocol System

Customer:			
Address:			
Fax / E-Mail:			
Fax / E-Mail:			
Department:		**Room:**	
Material-No.:		**Serial-No.:**	
Contract-No.:		**Expire date:**	
Order-No.:		**System - ID:**	

The instructions CT02-023.831.01.20.02 are required for this protocol

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English
Doc. Gen. Date: 10.09

Evaluating the Condition of the System / Component

The system / component has no deficiencies. The image quality test resulted in no differences from required reference values.	☐
The system / component has slight deficiencies that have no affect on continued operation of the system. However they should be corrected preventively. The image quality test resulted in no differences from required reference values.	☐
The system / component has serious deficiencies. For safety reasons, continued operation of the system is permitted only after successfully correcting the deficiencies.	☐

After completing all work steps, an evaluation was performed.

Signature: _____

Date: Name:

The customer or a representative has taken note of the assessment of the system condition (only if required in the country).

Signature: _____

Date: Name:

Remarks

e.g. Additional activities to be performed, customer wishes

Further Processing and Archiving of the Protocol

The protocol is a document and thus must be archived. After completing the test, it must be filed in the corresponding register in the “System Owner Manual“ binder.

Remarks Regarding the Protocol

The protocol is valid as proof of quality for **one** check that must be performed on the system / component.

The check must be performed in the specified intervals.

The results of the check are entered in this protocol.

The chapter numbers in front of the checkpoints indicate the corresponding chapters in the particular instructions (see cover page).

The protocol must be completely filled out by the Customer Service Engineer, i.e.:

- All boxes must be filled out. If a box does not apply to the system or if no entry needs to be made, check the “n.a.“ box.
- Enter the Serial no.: and the date of the check in the header of each page so that each page can be allocated to a check date.
- The measurement values for the measurements that must be performed during the check must also be entered in the open spaces / tables provided for them.
- After completing the check, Page 2 of this protocol must be filled out and signed.

Explanation of Abbreviations in the Protocol

Abbrev.	Explanation		Abbrev.	Explanation
SI	Safety Inspection		PMF	Preventive Maintenance, Operating Value Check, Function Check
SIE	Electrical Safety Inspection		Q	System Quality, Image Quality
SIM	Mechanical Safety Inspection		QIQ	Image Quality
PM	Preventive Maintenance		QSQ	System Quality Check
PMP	Periodic Preventive Maintenance		SW	Software Maintenance
PMA	Preventive Maintenance Adjustments		CSE	Customer Service Engineer

Measuring Equipment and Measuring Instruments Used

Measuring instruments and measuring devices (phantoms, MR coils etc.) may not be entered in the table if they have already been entered in the mobile device.

Measuring equipment / -instruments	Serial No.	Date used

			OK	not OK	n.a.
1		**General**			
2		**Prerequisites**			
2.1		**Required tools and auxiliary materials**			
2.2		**Evaluating Reports**			
	PM	Checking system reports	☐	☐	☐
2.3		**Evaluating the logbook**			
	PM	Error statistics readout	☐	☐	☐
3		**Safety Inspections**			
3.1		**General**			
3.2		**Function Tests**			
3.2.1		**Measuring the patient leakage current (DIN VDE 751-1)**			
	SI	Patient leakage current checked	☐	☐	☐
3.2.2		**Checking the protective ground conductor resistance**			
3.2.3		**Checking the function of the door contact switch**			
	SI	Door contact switch checked	☐	☐	☐
3.2.4		**System: Checking the radiation preparation indicator**			
	SI	Radiation preparation indicators checked	☐	☐	☐
3.2.5		**System: Checking the radiation indicator**			
	SI	Radiation indicators checked	☐	☐	☐
3.2.6		**System: Checking the radiation monitor (108%)**			
	SI	Radiation switch-off checked	☐	☐	☐
		Measured value:			
3.2.7		**System: Checking the emergency STOP circuit**			
	SI	Emergency STOP circuit checked	☐	☐	☐
3.2.8		**Gantry: Checking the tube cooling hoses**			
	SI	Tube cooling hoses checked	☐	☐	☐
3.2.9		**PHS: Checking the safety switches**			
	SI	Safety limit switches checked	☐	☐	☐
3.2.10		**PHS: Checking the spindle brake**			
	SI	Function of spindle brake checked	☐	☐	☐
3.2.11		**PHS: Checking the motor brake**			
	SI	Function of motor brake checked	☐	☐	☐

		OK	not OK	n.a.
3.2.12	**PHS: Checking the patient positioning aids**			
SI	Patient positioning aids checked	☐	☐	☐
3.2.13	**PDC: Protection functionality test**			
SI	Circuit breaker checked	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

3.3 Next steps

3.3.1 Labels

3.3.2 Concluding test

Q	Condition of the CT system checked	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

4 Preventive maintenance (part 1)

4.1 General

4.1.1 Preparations

4.1.2 Required tools and auxiliary materials

4.2 Patient handling system

4.2.1 Lubricating the spindle nut

PM	Spindle nut lubricated	☐	☐	☐

4.2.2 Lubricating the linear guides on the lower part of scissor mechanism

PM	Lower part of the scissor mechanism: Linear guides lubricated	☐	☐	☐

4.2.3 Lubricating the linear guides of the upper part of scissor mechanism

PM	Upper part of the scissor: Linear guides lubricated	☐	☐	☐

4.2.4 Lubricating the guide rails of the tabletop

PM	Tabletop: Guide rails lubricated	☐	☐	☐

4.2.5 Lubricating the guide rails of the top support

PM	Top support: Guide rails lubricated	☐	☐	☐

4.2.6 Checking the movement of the tabletop

PM	Movement force for horizontal tabletop travel checked	☐	☐	☐

		OK	not OK	n.a.
4.2.7	**Checking the movement of the top support**			
PM	Movement force for horizontal top support travel checked.	☐	☐	☐
4.2.8	**Checking the compression spring on the patient table**			
PM	Compression spring checked	☐	☐	☐
4.2.9	**Cleaning the motor brake of the couch lift motor**			
PM	Vertical motor brake cleaned	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

4.3 Next steps

4.3.1 Concluding test

Q	Condition of the CT system checked	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

5 Preventive maintenance (part 2)

5.1 General

5.1.1 Preparations

5.1.2 Required tools and auxiliary materials

5.2 Care Vision (Option)

5.2.1 Checking the weight compensation of the support arm

SI	Weight compensation of the support arm checked	☐	☐	☐

		OK	not OK	n.a.
5.3	**Sliding gantry (optional)**			
PM	Check the toothed belt	☐	☐	☐
PM	Cleaning the energy chain (every 3 years)	☐	☐	☐
PM	Check the switching elements (front and rear)	☐	☐	☐
PM	Check the blind covering (optional)	☐	☐	☐
PM	Check the protective conductor connection	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

5.4 Gantry

5.4.1 Functional check of the fans in the generator electronic box

SI	Function of E-box fans checked	☐	☐	☐

5.4.2 Functional check of the HV transformer fans

SI	Function of HV transformer fans checked	☐	☐	☐

5.4.3 Functional check of the C-box fans (only Sensation 10 / 16 / Cardiac)

SI	Function of C-box fan checked	☐	☐	☐

5.4.4 Functional check of the DMS fans

SI	Function of DMS fans checked	☐	☐	☐

5.4.5 Cleaning the slip ring compartment

PM	Slip ring compartment and assembly cleaned	☐	☐	☐

5.4.6 Cleaning/checking the power brush block

PM	Power brush block cleaned	☐	☐	☐
PM	Power carbon brushes checked	☐	☐	☐

Startup Date: ☐ . .

Date of Last Replacement: ☐ DD MMM YYYY

5.4.7 Checking/replacing the voltage and control data brushes

PM	Voltage and control data brushes checked	☐	☐	☐
PM	Control data brushes replaced	☐	☐	☐

Startup Date: ☐ . .

Date of Last Replacement: ☐ DD MMM YYYY

OK | not OK | n.a.

5.4.8 Replacing the stator ring brush (only Sensation 10 / 16 / Cardiac)

PM Stator ring brush replaced ☐ ☐ ☐

Startup Date: ☐ . . .

Date of Last Replacement: ☐ DD MMM YYYY

5.4.9 Lubricating the rack and pinion gear of the UHR assembly (only Sensation 64, Cardiac 64)

PM Rack and pinion gear lubricated (only Sensation 64, Cardiac 64, not UHR-Plus) ☐ ☐ ☐

5.4.10 Cleaning/checking the detector window

PM Detector window cleaned/checked ☐ ☐ ☐

Startup Date: ☐ . . .

Date of Last Replacement: ☐ DD MMM YYYY

5.4.11 Lubricating the main bearing

PM Main bearing lubricated ☐ ☐ ☐

5.4.12 Replacing the filter in the dehumidifier

PM Filter in Dehumidifier replaced ☐ ☐ ☐

Startup Date: ☐ . . .

Date of Last Replacement: ☐ DD MMM YYYY

Maintenance of this section was performed by:

Signature: _____

Date: Name:

5.5 Power distribution cabinet

5.5.1 Replacing the air filter

PM Air filter in PDC replaced ☐ ☐ ☐

Startup Date: ☐ . . .

Date of Last Replacement: ☐ DD MMM YYYY

OK | not OK | n.a.

5.5.2 Checking/replacing the varistors and discharger

PM Varitors / discharger checked/replaced ☐ ☐ ☐

Startup Date: ☐ . . .

Date of Last Replacement: ☐ DD MMM YYYY

Maintenance of this section was performed by:

Signature: _____

Date: Name:

5.6 Water cooling system

5.6.1 Checking the water pressure

PM Water pressure checked ☐ ☐ ☐

Measured value:

5.6.2 Cleaning the filter in the water-air cooling system

PM Filter cleaned ☐ ☐ ☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

5.7 Imaging system

5.7.1 Cleaning the ICS, IRS and IES

PM Air inlets of ICS, and IES cleaned ☐ ☐ ☐

PM Air inlets of IRS and air filters are cleaned ☐ ☐ ☐

PM IRS air filter replaced ☐ ☐ ☐

Startup Date: ☐ . . .

Date of Last Replacement: ☐ DD MMM YYYY

Maintenance of this section was performed by:

Signature: _____

Date: Name:

		OK	not OK	n.a.
5.8	**SRS Check**			
5.8.1	**Work Steps for Som/7 VA11 and Som/5 VB30/VB38**			
5.8.1.1	**Checking the status of the SRS installation (check only!)**			
PM	Checking the status of the SRS installation	☐	☐	☐
5.8.1.2	**Checking the System Management Configuration**			
PM	Checking the System Management Configuration	☐	☐	☐
5.8.2	**Work Steps for Som/5 VB20/VB28**			
5.8.2.1	**Checking the status of the SRS network connection (check only!)**			
PM	Checking the status of the SRS network connection	☐	☐	☐
5.8.2.2	**Checking the System Management Configuration**			
PM	Checking the System Management Configuration	☐	☐	☐
5.9	**Next steps**			
5.9.1	**Concluding test**			
Q	Condition of the CT system checked	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

6 Preventive parts replacement

6.1 General

6.1.1 Preparations

6.1.2 Required tools and auxiliary materials

6.2 Uninterrupted power supply

6.2.1 Prerequisites

6.2.2 Replacing the standard UPS

PM	UPS replaced	☐	☐	☐

Startup Date: ☐ . .

Date of Last Replacement: ☐ DD MMM YYYY

Maintenance of this section was performed by:

Signature: _____

Date: Name:

OK | not OK | n.a.

6.3 DMS cover Sensation 10 / 16 / Sensation Cardiac

6.3.1 Prerequisites

6.3.2 Check the correct attachment of the lead sheet metal.

PM DMS cover replaced ☐ ☐ ☐

Startup Date: ☐ . .

Date of Last Replacement: ☐ DD MMM YYYY

Maintenance of this section was performed by:

Signature: _____

Date: Name:

6.4 Next steps

6.4.1 Concluding test

Q Condition of the CT system checked ☐ ☐ ☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

7 Image quality - constancy

Q Image quality check completed ☐ ☐ ☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

8 Final steps

8.1 Installing the unit covers

SIM Covers and protective conductor cables are installed ☐ ☐ ☐

OK not OK n.a.

8.2 Checking the protective system conductor

8.3 General notes when measuring at the monitors

8.3.1 Measuring point 18” monitor

8.3.2 Measuring point 19” monitor

8.4 SOMATOM Sensation 10 / 16 / Cardiac / 40 / 64 / Cardiac 64 / Open

SIE PDC Cabinet: Protective conductor resistance ≤ 100 mΩ ☐ ☐ ☐

Measured value:

SIE Gantry: Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE Patient table (PHS): Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE ICS Tower PC: Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE IRS Cabinet: Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE IES Tower PC: Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE ICS Monitor: Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE IES Monitor: Protective conductor resistance ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE WCS Cabinet: Protective conductor resistance (mains connected directly) ≤ 100 mΩ Protective conductor resistance (connected via PDC) ≤ 300 mΩ ☐ ☐ ☐

Measured value:

SIE UPS IES: Protective conductor resistance ≤ 100 mΩ ☐ ☐ ☐

Measured value:

		OK	not OK	n.a.
SIE	IES Tower PC: Protective conductor resistance ≤ 300 mΩ	☐	☐	☐
	Measured value:			

8.5 CARE Vision CT option

SIE	Overhead support: Protective conductor resistance ≤ 300 mΩ	☐	☐	☐
	Measured value:			
SIE	Monitor trolley: Protective conductor resistance ≤ 300 mΩ	☐	☐	☐
	Measured value:			
SIE	Monitor: Protective conductor resistance ≤ 300 mΩ	☐	☐	☐
	Measured value:			

8.6 Cleaning the monitors

SIM	Monitors cleaned	☐	☐	☐

8.7 Testing the system application

Q	Condition of the CT system checked	☐	☐	☐

Maintenance of this section was performed by:

Signature: _____

Date: Name:

9 Changes to previous Version